data set. Within these data segments, sections 378 encode the low and high frequency sub-bands or data sets. In the following data segments 348, sections 380 encode high frequency sub-bands or data sets for the higher levels. It should also be noted that, as mentioned above, additional code values are included within the data stream for the information discussed above with respect to Huffman code tables used for compression, subregion lengths, and so forth.

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For marked changes see the attachment labeled "Version with Markings to Show Changes Made."

IN THE CLAIMS

Please cancel claim 1 without prejudice.

Please add the following new claims 2-55:

2. (New) A method for compressing image data, the method comprising the acts of:

decomposing the image data into a plurality of data sets using lossless wavelet decomposition;

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compressing the plurality of data sets using lossless compression; and

compiling a data stream comprising the compressed plurality of data sets arranged sequentially in a desired order based upon the decomposition.

3. (New) The method of claim 2, wherein the lossless wavelet decomposition comprises lossless integer wavelet decomposition.

4. (New) The method of claim 2, further comprising selectively transmitting at least a portion of the data stream, the portion being determined based upon user viewing capabilities.

5. (New) The method of claim 2, wherein the data stream further comprises a header, the header comprising a quantity of the plurality of data sets, a resolution of each data set, and a compressed size of each data set.

6. (New) The method of claim 2, wherein the desired order comprises an order of increasing resolution.

7. (New) The method of claim 2, further comprising storing the data stream.

8. (New) The method of claim 2, wherein the plurality of data sets correspond to a plurality of resolution levels.

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9. (New) The method of claim 2, wherein the act of decomposing the image data using lossless wavelet decomposition comprises creating a hierarchical set of sub-bands comprising a low frequency component and high frequency components at a resolution level and further decomposing the low frequency component of the resolution level to form a next lower resolution level until a desired smallest resolution level is reached, each data set corresponding to a respective resolution level, each data set comprising a low frequency component and high frequency components at the respective resolution level.

10. (New) The method of claim 9, wherein the act of compressing the plurality of data sets comprises compressing the high-frequency components using actual values and compressing the low frequency component at the desired smallest resolution level using prediction errors.

11. (New) The method of claim 2, wherein the act of compressing the plurality of data sets comprises dividing the data sets into subregions to be individually compressed.

12. (New) The method of claim 11, wherein the act of compressing the plurality of data sets further comprises selecting a compression algorithm for each subregion based upon an entropy of each subregion.

13. (New) A method for retrieving compressed image data, the method comprising the acts of:

determining a parameter of a user view port;

selectively transmitting a portion of compressed image data based upon the parameter, wherein the compressed image data comprises a series of compressed data sets generated by lossless wavelet decomposition and compression, and wherein the series is ordered sequentially based upon order of generation of the data sets during lossless wavelet decomposition.

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14. (New) The method of claim 13, wherein the parameter of the user view port comprises a resolution level.

15. (New) The method of claim 14, wherein the series of compressed data sets corresponds to a series of resolution levels.

16. (New) The method of claim 15, wherein the act of selectively transmitting the portion of compressed image data based upon a parameter comprises transmitting the compressed data sets corresponding to resolution levels that are lower than or equal to the resolution of the user view port.

17. (New) The method of claim 13, wherein the user view port comprises a workstation.

18. (New) The method of claim 13, wherein the lossless wavelet decomposition comprises lossless integer wavelet decomposition.

19. (New) The method of claim 13, wherein the series is ordered sequentially opposite the order of generation of the data sets during lossless wavelet decomposition.

20. (New) The method of claim 13, wherein the act of determining a parameter of a user view port comprises acquiring a resolution from the client.

21. (New) The method of claim 13, wherein the act of selectively transmitting comprises selectively transmitting over a network.

22. (New) A method for handling image data, the method comprising the acts of:

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decomposing the image data into a plurality of resolution levels using lossless wavelet decomposition;

compressing the decomposed image data from each resolution level using lossless compression; and

creating and storing a data stream in sets based upon the resolution levels of decomposed and compressed image data.

23. (New) The method of claim 22, wherein lossless wavelet decomposition comprises lossless integer wavelet decomposition.

24. (New) The method of claim 22, wherein the plurality of resolution levels comprises a lowest resolution level and a remaining plurality of resolution levels, and wherein the plurality of resolution levels each comprise high frequency components and a low frequency component.

25. (New) The method of claim 24, wherein the act of compressing the decomposed image data comprises compressing the high frequency components using actual values and compressing the low frequency component of the lowest resolution level using prediction error values.

26. (New) The method of claim 22, wherein the act of compressing the decomposed image data comprises dividing the decomposed image data into subregions and selecting a compression algorithm for each subregion based upon an entropy of that subregion.

27. (New) The method of claim 22, further comprising the acts of selecting a resolution level of reconstruction based upon a viewing capacity of a client and reconstructing the image data to the selected resolution level.

28. (New) The method of claim 22, further comprising accessing the sets of the data stream corresponding to resolution levels that are lower than or equal to a resolution of a user view port.

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29. (New) The method of claim 22, wherein the sets of the data stream are ordered sequentially in order of increasing resolution.

30. (New) A method of storing image data, the method comprising the acts of:

decomposing the image data into a plurality of resolution levels using lossless integer wavelet decomposition;

compressing the decomposed image data based upon the plurality of resolution levels;

composing a file such that the decomposed and compressed image data is ordered sequentially by resolution level in order of increasing resolution; and

storing the file.

31. (New) The method of claim 30, wherein the plurality of resolution levels comprises a lowest resolution level and a remaining plurality of resolution levels.

32. (New) The method of claim 31, wherein the plurality of resolution levels each comprise high frequency components and a low frequency component.

33. (New) The method of claim 32, wherein the act of compressing the decomposed image data comprises compressing the high frequency components based upon actual values and compressing the low frequency component of the lowest resolution level based upon prediction error values.

34. (New) The method of claim 30, wherein the act of composing a file further comprises composing a header to be located before the decomposed and compressed image data, the header comprising a quantity of the plurality of resolution levels, a resolution of each resolution level, and a compressed size of compressed image data corresponding to each resolution level.

35. (New) The method of claim 30, further comprising the act of selectively accessing the file based upon a parameter of a user view port.

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36. (New) A system comprising:

a compression interface, the interface being configured to decompose image data using lossless wavelet decomposition producing a plurality of data sets corresponding to a plurality of resolution levels comprising a lowest resolution level and a highest resolution level, being configured to losslessly compress the plurality of data sets, and being configured to arrange the compressed plurality of data sets into a data stream in order of increasing resolution from the lowest resolution level to the highest resolution level; and

a memory device configured to store the data stream.

37. (New) The system of claim 36, wherein the system comprises a picture archiving and communication system.

38. (New) The system of claim 37, further comprising one or more imaging systems.

39. (New) The system of claim 38, wherein the one or more imaging systems comprise an MRI system.

40. (New) The system of claim 38, wherein the one or more imaging systems comprise a computed tomography system.

41. (New) The system of claim 38, wherein the one or more imaging systems comprise a positron emission tomography system.

42. (New) The system of claim 38, wherein the one or more imaging systems comprise a radio fluoroscopy system.

43. (New) The system of claim 38, wherein the one or more imaging systems comprise a computed radiography system.

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44. (New) The system of claim 38, wherein the one or more imaging systems comprise an ultrasound system.

45. (New) The system of claim 36, wherein the lossless wavelet decomposition comprises lossless integer wavelet decomposition.

46. (New) The system of claim 36, wherein the plurality of data sets comprise a lowest resolution data set and a remaining plurality of data sets, the remaining plurality of data sets and the lowest resolution data set each comprising high frequency components and a low frequency component.

47. (New) The system of claim 46, wherein the compression interface is configured to losslessly compress the high frequency components using actual values and the low frequency component using prediction error values.

48. (New) The system of claim 36, further comprising an output interface configured to selectively access a portion of the data stream, the portion corresponding to a resolution of a client.

49. (New) A computer program comprising:

a machine readable medium for storing machine readable code; and

configuration code stored on the machine readable medium, the code being configured to generate a plurality of data sets by decomposing image data using lossless wavelet decomposition, each data set corresponding to a resolution level, the code being further configured to losslessly compress the plurality of data sets and arrange the compressed plurality of data sets in order of increasing resolution levels.

50. (New) The computer program of claim 49, wherein the code is further configured to selectively access a portion of the plurality of data sets, the portion corresponding to a resolution level of a viewing client.

51. (New) The computer program of claim 49, wherein the lossless wavelet decomposition comprises lossless integer wavelet decomposition.

52. (New) The computer program of claim 49, wherein the plurality of data sets comprise a lowest resolution data set and a remaining plurality of data sets and wherein the plurality of data sets each comprise high frequency components and a low frequency component.

53. (New) The computer program of claim 52, wherein the code is configured to losslessly compress the high frequency components using actual values and the low frequency component of the lowest resolution data set using prediction error values.

54. (New) The computer program of claim 49, wherein the code is further configured to store the arranged compressed plurality of data sets in a file.